

Serial No. 10/621,129
67,008-070; S-5668

AMENDMENTS TO THE DRAWINGS

Figures 5 and 7 have been amended to coordinate perspective in the view. No new matter has been added. These drawings replace the previously filed drawings.

Serial No. 10/621,129
67,008-070; S-5668

REMARKS

Applicant wishes to thank the Examiner for the detailed remarks. Claims 1, 4, 8, 12, 16, 22, 23, 24, 26, and 27 have been amended and claims 2, 3, and 25 have been canceled. Claims 28-37 stand withdrawn. New claims 38-40 are presented. Accordingly, claims 1, 4, 5-24, 26, 27, and 38-40 are pending.

Applicant respectfully suggests that the amended claims are properly allowable under 35 U.S.C. §112 as Applicant has utilized the Examiner's proposed language of "resilient characteristic" which is at least as broad as Applicant's original "flexibility" terminology.

Claims 1 and 12 were rejected under 35 U.S.C. §102(b) as being anticipated by *WO 01/98100 to Pengilly*. Applicant respectfully traverses this rejection. *Pengilly* fails to disclose or suggest a gear mesh generally transverse to the pinion gear axis as recited in amended claims 1 and 12. The amended claims are properly allowable.

Claims 3-11, 13-24 and 26-27 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Kish* (5,813,292) in view of *WO 01/98100 to Pengilly*. Applicant respectfully traverses these rejections as there is absolutely no teaching, suggestion, or motivation to modify *Kish* (5,813,292) in view of *Pengilly* as proposed.

The Examiner admits that *Kish* (5,813,292) does not teach a floating pinion gear driven by a radially unsupported pinion shaft which provides a resilient characteristic to allow the floating pinion axis of rotation to be displaceable off the common curved line to split a load between the first spur gear and the second spur gear. The Examiner suggests that it would have been obvious to modify the *Kish* gear train branches 106L and 106R such that the pinion gear 114L and 114R are floating pinions, which are driven by a pair of radially unsupported pinion shafts, in view of *Pengilly*'s teaching of the floating pinion gear in order to evenly distribute the torque between the first and second spur gears.

It should be noted that *Kish* is assigned to the assignee of the present application. *Kish*, although effective, provides rigid precisely machined gear interfaces. The only gear movement *Kish* discloses is the relative axial movement between gears 116L/R and 114L/R in response to movement between the double helical bull gear 108 and the double helical bull pinions 118L/R.

Serial No. 10/621,129
67,008-070; S-5668

This is why gears 116L/R and 114L/R are spurs gears – they are precisely retained, yet permit axial movement therebetween. That is, pinion gear 114L/R must be radially supported and the axis of rotation cannot be radially displaceable only axial displaceable.

Combination of the *Kish* gear train branches 106L and 106R with the floating pinion gear 14 of *Pengilly* would fail to provide the precisely retained and axial movement required by *Kish*. It should be understood that gear trains are complicated systems which are not readily adaptable to modification without complicated downstream consequences. That is, gearboxes, particularly helicopter gearboxes are designed as complete systems. Simply replacing the axially fixed pinion gear of *Kish* with a floating pinion gear as disclosed in *Pengilly* would not result in an operative gearbox since there would be no mechanism for retaining only the floating pinion gear 14 in engagement. It is improper to modify the base reference in such a way that it ruins the goal or function of the base reference. The Examiner's proposed modification would do so by permitting radial movement in the axially movable but otherwise rigid and precisely machined gear interfaces taught by *Kish*.

Alternatively, if the Examiner proposes that the entire gear train of *Pengilly* other than gear 20 be utilized to replace gear train branches 106L, 106R entirely, the Examiner must show motivation for this significant of a modification.

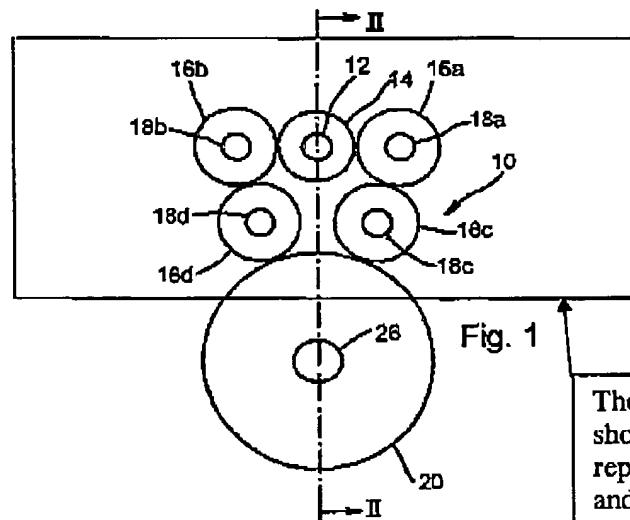


Fig. 1

The Examiner cannot show motivation to replace branches 106L and 106R of *Kish* with all of this gearing.

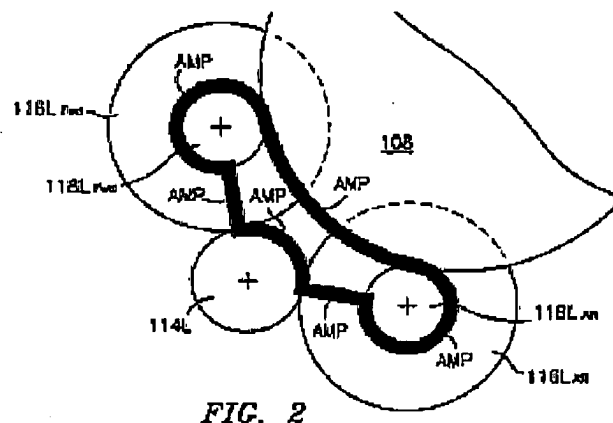
Serial No. 10/621,129
67,008-070; S-5668

That is, the Examiner is proposing the replacement of an effective, compact and efficient high-speed gear train with a gear train designed for trucks. In other words, the Examiner is utilizing Applicant's gear train as a blueprint to combine disparate gear train branches in an attempt to recreate Applicant's system. This is hindsight – this is improper.

Moreover, if the Examiner is proposing combining the entire gear train of *Pengilly* other than the gear 20 (gears 14, 16a, 16b, 16c, and 16d), an exceedingly bulky gearbox would result as such a gear arrangement (gears 14, 16a, 16b, 16c, and 16d) must be utilized for each high-speed input shaft. Such an arrangement may be acceptable for a truck, however, such an arrangement is unacceptable for a helicopter where weight and compactness are of high importance. One of skill in the art would have no motivation to make such a combination. The claims are properly allowable.

Furthermore, even if the combination were properly made – which they are not – there are differences between the claimed invention and the teachings of the cited references so that the combination does not meet the limitations of Applicant's claims.

Claims 1 and 8 as well as claim 12 recite that the first gear axis of rotation, the second gear axis of rotation and the pinion gear axis of rotation located along a common line, the pinion gear axis of rotation displaceable off the common line. *Kish*, even under the Examiner's interpretation, fails to disclose or suggest that the axes of rotation of the pinion and spur gears of gear train branches 106L/R are along a common line as evidenced in *Kish* Figure 2 below:



Serial No. 10/621,129
67,008-070; S-5668

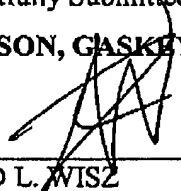
Thus, even if the combination is proper – which it is not – amended claims 1, 8 and 12 are properly allowable.

New claims 38-40 recite further angled input shaft features, which are neither disclosed nor suggested by the cited references and are thus properly allowable.

Please charge \$120 to Deposit Account No. 50-1482, in the name of Carlson, Gaskey & Olds, for a one-month extension of time. If any additional fees or extensions of time are required, please charge to Deposit Account No. 50-1482.

Applicant respectfully submits that this case is in condition for allowance. If the Examiner believes that a teleconference will facilitate moving this case forward to being issued, Applicant's representative can be contacted at the number indicated below.

Respectfully Submitted,
CARLSON, GASKEY & OLDS, P.C.



DAVID L. WISZ
Registration No. 46,350
Attorneys for Applicant
400 West Maple, Suite 350
Birmingham, Michigan 48009
(248) 988-8360

Dated: 6-6-06

N:\Clients\SIKORSKY\IP00070\PATENT\HELOA\md070-02-16-2006--2 DLW.doc